

**SEEVERSIELLA BISPINOSA, A NEW GENUS AND SPECIES OF
ATHETINE ALEOCHARINAE (COLEOPTERA: STAPHYLINIDAE)
FROM NORTH AMERICA**

JAMES S. ASHE

Division of Insects, Field Museum of Natural History,
Roosevelt Road at Lake Shore Drive, Chicago, Illinois 60605

Abstract.—*Seeversiella bispinosa*, a new genus and species of athetine aleocharine staphylinid, is described and illustrations of structural features are provided. Members of *Seeversiella* are particularly distinctive among known North American aleocharines because of the presence of a large spine on each apico-lateral margin of abdominal tergum III and a medial carina on tergum VII of most males. The species was first noted as representing a "new genus" in a key to genera of North American Aleocharinae provided in 1978 by Dr. Charles Seevers, but he did not give it a formal name or provide a description. Modification of pertinent couplets of Seevers' key is provided which allows for identification of specimens of *Seeversiella*.

The staphylinid subfamily Aleocharinae represents one of the most taxonomically difficult large sections of the Coleoptera in North America (Arnett, 1968) in spite of their abundance and great diversity in many microhabitats. At present, it is virtually impossible to confidently assign many specimens to one of the 200 or so genera described for America north of Mexico without comparisons with type material or a major reference collection. With this perspective in mind, I would normally consider it premature to describe new North American genera in the Aleocharinae, except possibly in those few tribes or subtribes which have received modern revisionary studies. Until the numerous genus level groups already in the literature are properly delimited, described and illustrated and functional keys are provided for their separation, it seems that description of new taxa is only likely to add more confusion to an already difficult subfamily. However, the genus described in this paper is recognized to be undescribed as a result of a rather unusual set of circumstances, and, for reasons outlined below, I feel that it is timely to provide a name with adequate description and illustrations.

The unusual circumstances surrounding this new genus began with the studies of Dr. Charles Seevers on the systematics of the higher taxa of North American Aleocharinae. These studies, which represent the only serious and comprehensive attempt to bring some degree of order out of the chaos of numerous, superficially described genera for North American aleocharines, were undertaken primarily at the Field Museum of Natural History in Chicago, where Dr. Seevers was a research associate. Unfortunately, at Dr. Seevers' death in 1965, his studies had not been completed. However, he had amassed a considerable quantity of manuscript copy in advanced stages of completion toward a revision of genera of the Aleocharinae. Recognizing the importance and irreplaceable value of the information included in Seevers' unpublished manuscript, Dr. Henry Dybas, Curator of Insects, and Dr. Rupert Wenzel, Chairman of the Department of Zoology, both of the Field Museum, elected to edit, organize and ultimately publish this manuscript in spite of its incompleteness.

They employed Dr. Lee H. Herman, a noted specialist on the Staphylinidae, to edit and check the accuracy of the manuscript and to provide annotations as appropriate. However, major revision and completion of the manuscript was not attempted, and it was published in 1978 as nearly as possible in the form left by Dr. Seevers. It is clearly incomplete, uneven in its treatment and erroneous in many areas, all of which would not have been true had Dr. Seevers been able to complete his work. Yet, because it provides the only comprehensive basis for addressing problems associated with North American aleocharines, this revision has become the standard reference for study of this group.

In Seevers' revision, the first half of couplet 69 of the key to genera (page 46) provides for identification of a "new genus." No formal name is provided and no other mention of this "new genus" occurs elsewhere in the text. In an annotation, Dr. Herman notes that he was unable to find any reference to it in the text or catalogue that he edited. Considerable searching in the collection of the Field Museum has failed to turn up any specimens which are clearly labeled as material that Seevers had intended to use for description of this new genus. However, very distinctive specimens which generally agree with the key provided were found amongst the alcohol preserved collections. This material clearly represents an undescribed genus and is characterized by the highly distinctive male secondary sexual features used in Seevers' key. There can be little doubt that this material represents the new genus that Seevers had planned to key out in this couplet, even if not the material he actually examined. Since this time, additional material has been found, some in the collection of the American Museum of Natural History, and some as a result of my own collecting and that of others. The most notable collections were made by Dr. Milton Sanderson who has collected long series of members of this genus on a number of occasions and has kindly made them available for my study.

In order to clarify this part of Seevers' (1978) revision, it seems very pertinent and timely to provide a formal name and description for this new genus.

Seeversiella, new genus

Diagnosis. Members of *Seeversiella* can be easily distinguished from other Aleocharinae by the combination of: quadrate to slightly elongate head; eye length less than 0.5 times length of head and shorter than distance from posterior margin of eye to base of head (Fig. 1); more or less quadrate pronotum (Fig. 2); head and pronotal setal patterns with setae directed medially (Figs. 1, 2); elytra with sinuate or posterolaterally directed setal pattern (Fig. 3); hypomera fully visible in lateral aspect; mesosternum without medial carina (Fig. 4); known species with mesosternal process: isthmus: metasternal process in ratio of 26:22:7 (Fig. 4) (see Seevers, 1978, p. 27); tarsal formula 4,5,5; abdominal terga III-IV or III-V moderately to slightly impressed basally; male abdominal tergum III with slight to marked lateral spinose processes (Fig. 10), and tergum VII with medial carina; female without secondary sexual modifications; aedeagus with internal hooks and spinose areas (Fig. 11); and spermatheca simple (Fig. 3).

Description. Moderate sized, length of known species approximately 3.1-4.0 mm. Body shape elongate, slender, more or less flattened. Body color of known species uniformly dark reddish brown to dark brown. Body sculpture reticulate throughout with microsculpture denser and more prominent on head, pronotum and elytra,

integument surface dull to slightly shining; integument moderately and very finely pubescent, microsetae appressed; macrosetae present, inconspicuous; punctures moderately dense, very fine.

Head (Fig. 1) quadrate to slightly elongate in dorsal aspect, 1.0–1.1 times as long as wide, basal angles broadly rounded, neck absent. Eye size small, 0.30–0.40 times length of head. Tempora long, 1.5–1.8 times length of eye, broadly rounded basally. Dorsal pubescence directed medially. Infraorbital carina slight basally, fading and absent anteriorly and ventrally. Antenna (Fig. 9) moderately short, about as long, or slightly longer than, head and pronotum together in most; very slightly incrassate; article 4 more or less quadrate to very slightly transverse, articles 5–10 slightly to moderately transverse and increasing in width to more apical articles.

Labrum as in Figure 5. Right mandible with small internal tooth, left mandible without internal tooth; mandibular apices acute, entire; molar region slightly developed, without dense patch of denticles but with single row of spinose teeth on inner edge; protheca with spinose teeth medially (Fig. 6). Maxilla (Fig. 8) with galea slightly longer than lacinia; galea densely pubescent in apical 0.3 with long filiform setae; lacinia with comb of single row of large teeth apico-medially and dense patch of recurved setae dorso-medially; maxillary palpus 4 article, without accessory pseudosegment on article 4. Labium (Fig. 7) with palpi 3 article, not styloform; ligula short, about 1.0–1.1 times as long as width of base, deeply divided to near base into 2 bluntly rounded, divergent lobes; medial setae 2, widely separated at base, distance between setal insertions greater than width of ligula; prementum with several pseudopores medially and posterior to medial setae, and several large pores and 1 spinose pore laterally on each side.

Pronotum (Fig. 2) more or less quadrate, about 1.0 times as wide as long; slightly convex in cross section; anterolateral margins obtusely rounded and slightly depressed, sides more or less straight; posterior angles rounded, not bisinuate basally; pronotal edge margined with a fine raised bead; pubescence with setae directed medially. Hypomera broadly visible in lateral aspect. Elytra (Fig. 3) slightly longer than pronotum (1.15–1.20 times longer); outer apical angles evenly rounded, not sinuate; pubescence arranged in a sinuate pattern or directed more or less posteriorly. Mesosternum not carinate medially; mesosternal process pointed, acute, reaching to approximately middle of coxal cavities; metasternal process short, broadly rounded; isthmus long; coxal cavities contiguous posteriorly, coxae very narrowly separated. Mesosternal process: isthmus: metasternal process ratio of known species 26:22:7. Metepisternal setae numerous, in 2–3 irregular rows, setose area not delimited by a carina. Legs with tarsal formula 4,5,5; hind tarsomere 1 approximately 1.2–1.3 times as long as 2.

Abdomen with general shape elongate, more or less parallel sided or broadly and slightly tapered from basal segments to acute apex. Terga III–IV or III–V moderately to slightly transversely impressed basally. Sterna not impressed. Tergum X triangular, narrow basally; setae absent postero-medially to produce a moderately narrow inverted V-shaped setal patch.

Aedeagus (Fig. 11): Median lobe with numerous internal sclerotized hooks and setose areas.

Spermatheca (Fig. 13): Simple, basal bulb small, neck not elongate or coiled.

Secondary sexual characteristics: Male with lateral margins of tergum III prolonged

into very slight to very markedly developed spinose processes (Fig. 10) and tergum VII with prominent to very slight medial carina extended from anterior 0.2 to posterior margin, or only on posterior 0.5, or absent (in some). Female unmodified.

Type species. *Seeversiella bispinosa*, new species, here designated.

Distribution. Presently known only from the range of the type species.

Etymology. The genus name "Seeversiella" is chosen to honor Dr. Charles Seevers, who first recognized that this taxon represented an undescribed genus, and in recognition of his considerable contributions to knowledge of the North American Aleocharinae.

Discussion. Among Aleocharinae from America north of Mexico the genus *Seeversiella* is quite distinctive and can be recognized by those characteristics given in the diagnosis. Most notable among these are the striking secondary sexual characteristics of male specimens. Similar structures have not been described for any other group of North American aleocharines. However, some care should be used in basing identifications solely on these secondary sexual features.

I have seen specimens of an apparently undescribed genus of aleocharine from Mexico (Veracruz and Tamaulipas) which have male secondary characteristics amazingly similar to those of *Seeversiella* as well as having general habitus and color features which are also similar. Most remarkable are the large lateral spines on the apical margin of abdominal tergum III (some have the medial area of this tergum also produced posteriorly as a triangular spine) and a carinate knob or spine medially on tergum VII. These are so superficially similar that initial examination suggested that they may represent another species in the same genus. However, upon closer examination, the marked differences between the Mexican and United States specimens became apparent. They differ in a number of characteristics which have previously been used to describe taxa at the generic, or higher, level, but most notably in the pair of coeloconic sensory structures of antennomere 11 and the 5,5,5 tarsal formula of the Mexican specimens.

Clearly the Mexican specimens are in the Oxypodini, in contrast to the athetine relationships of *Seeversiella*. The remarkable overall resemblance, and especially the striking similarity in secondary sexual characteristics, represents an instance of considerable parallelism in the Aleocharinae. It also graphically illustrates that secondary sexual characteristics alone are not adequate for correctly identifying a specimen as *Seeversiella*.

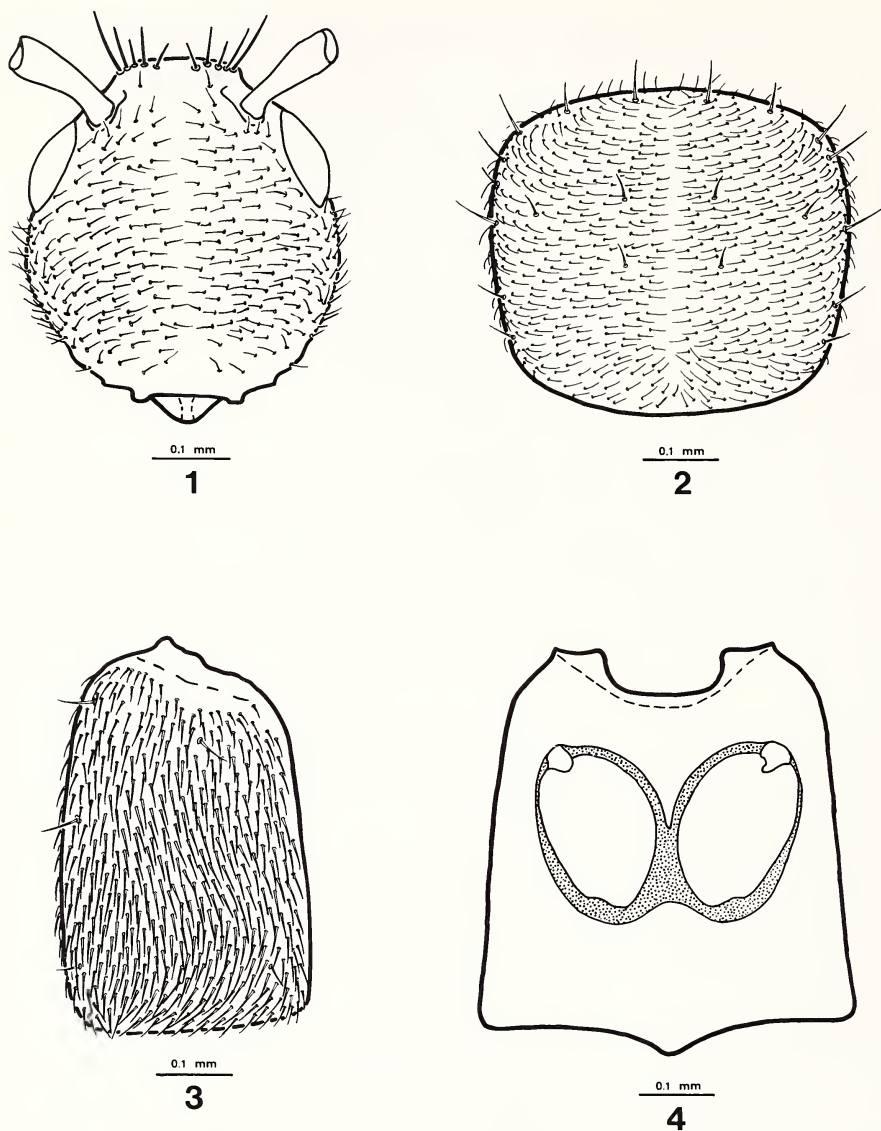
Presently, only a single species is included in *Seeversiella*. This suggests that when other species are discovered, the generic description provided here may be shown to be incorrect in some details and will consequently require modification. However, characteristics used in the generic description are those which have previously proven to be useful in descriptions of athetine aleocharines, and, therefore, I expect any required modifications to be minimal.

***Seeversiella bispinosa*, new species**

Figs. 1–13

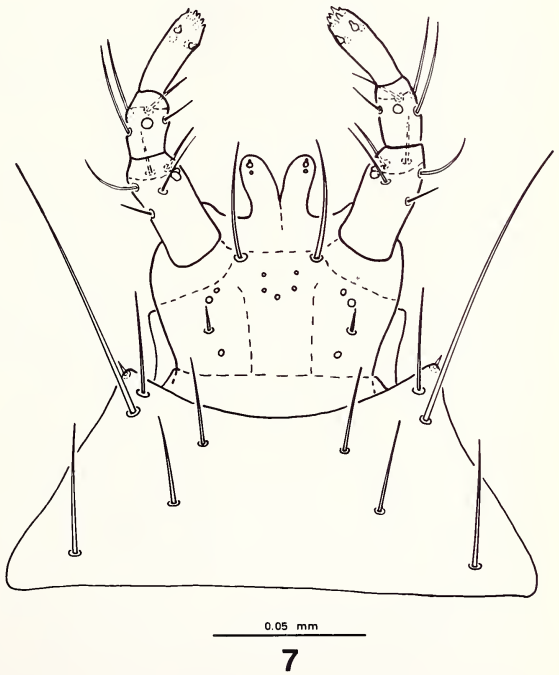
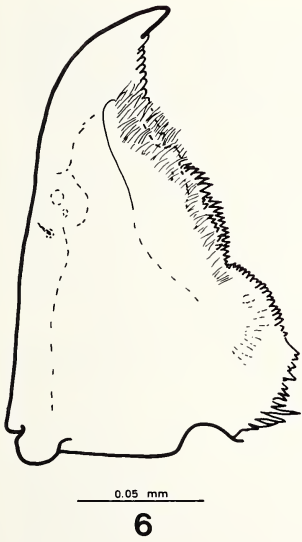
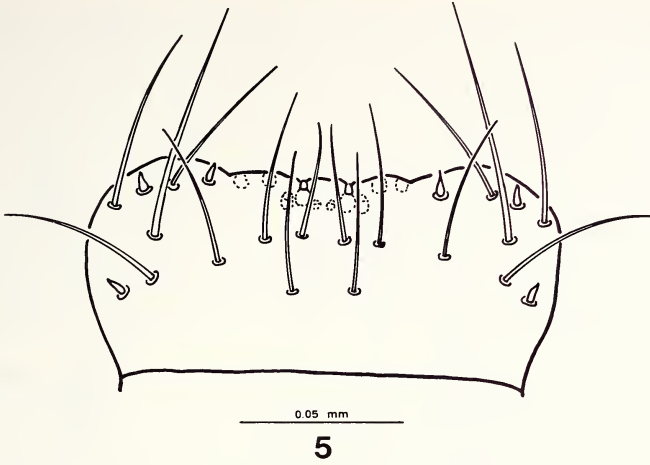
Description. Length 3.1–4.0 mm. Body color uniformly dark reddish brown to dark brown.

Head (Fig. 1) markedly reticulate with dense, well defined irregularly isodiametric sculpticells, surface very slightly shining; microsetae short, moderately dense, ap-



Figs. 1-4. *Seeverssiella bispinosa*, new species. 1. Head, dorsal aspect. 2. Pronotum. 3. Left elytron. 4. Meso-metasterna and mesocoxal cavities.

pressed; punctures very fine, inconspicuous. Antenna (Fig. 9) with articles 1-3 elongate, more or less equal in length; article 4 quadrate (in most) to very slightly transverse; article 5 transverse, approximately 1.1-1.2 times as wide as long; articles 5-10 decreasing in length and becoming more transverse to anterior articles; article 10 transverse, approximately 1.6-1.7 times as wide as long; article 11 about as long as



Figs. 5-7. *Seeversiella bispinosa*, new species. 5. Labrum. 6. Mandible. 7. Labium, ventral aspect.

9 and 10 together. Pronotum (Fig. 2) densely reticulate with irregularly isodiametric sculpticells, surface very slightly shining; pubescence with setae directed medially, setae moderately dense, short, appressed; punctures very fine, inconspicuous. Elytra (Fig. 3) slightly wider at base than maximum width of pronotum; sculpture densely isodiametrically reticulate, integument more or less dull to very slightly shining; setation moderately dense, short, appressed, in sinuate pattern (in most) or directed more or less posteriorly in some; punctures very finely and slightly asperate. Abdominal terga with moderately sparse pubescence, microsetae fine, short and appressed; punctures very fine; microsculpture present, reticulate, distinct but less dense and well defined than on anterior parts of body, integument shining. Abdominal sterna with moderate pubescence, microsetae very fine, short, appressed; sculpture reticulate, integument shining.

Secondary sexual characteristics: Male with characteristics of the genus; lateral margins of tergum III produced as spinose processes and tergum VII with longitudinal medial carina extended from anterior 0.2 to apex of tergum or limited to posterior 0.5 of tergum; development very various among males, some with lateral spines of tergum III inconspicuously produced (Fig. 10A), or, in a very few, absent, and medial carina of tergum VII absent to lateral spines and medial carina extremely large and prominent (Fig. 10C). Female unmodified.

Aedeagus: Median lobe (Fig. 11) with large oval depressor plate and small apical process; internal sclerites with pair of large, well sclerotized hooks postero-ventrally and sclerotized flagellar process, and numerous setose internal membranes. Parameres (Fig. 12) with apical lobe of paramere small, most basal apical process seta at least 2.0 times longer than other 3 setae.

Spermatheca (Fig. 13): Simple; basal bulb small; neck constricted and apex inflated.

Type. Holotype, male, and allotype, female, each with labels as follows: Arizona: San Francisco Mtns., Hart Prairie rd. (418), 11-IX-1982, M. W. Sanderson, woody debris base dead ponderosa pine; Holotype (on female, Allotype), *Seeveriella bispinosa*, n. sp., Designated J. S. Ashe, 1985. Both holotype and allotype are deposited in the collection of the Field Museum of Natural History, Chicago, Illinois.

Paratypes. 168. Distributed in the following museums: Field Museum of Natural History, Chicago, Illinois (FMNH); American Museum of Natural History, New York, New York (AMNH); United States National Museum, Washington, D.C. (USNM); and, Canadian National Collection, Ottawa, Ontario (CNC). ARIZONA: Coconino Co., Hutch Mtn., rd. 124H, 14-X-1984, M. W. Sanderson, douglas fir duff, some aspen, 8 males, 9 females (FMNH); same locality, 8-X-1985, M. W. Sanderson, oak-pine-fir debris, 5 males, 7 females (FMNH); San Francisco Mtns., Hart Prairie rd. (418), 11-IX-1982, M. W. Sanderson, woody debris base dead ponderosa pine, 34 males, 34 females (3 males, 1 female on microslides) (FMNH, USNM, CNC); same locality, 24-V-1983, M. W. Sanderson, debris at base of ponderosa pine, 9 males, 11 females (FMNH); San Francisco Mtns., Fairfield Snowbowl, rd. 516, 14-XI-1984, M. W. Sanderson, aspen-fir duff, 2 males, 1 female (FMNH); San Francisco Mtns., Lockett Meadow, 19-IX-1981, berlese sample under aspens, 4 males (FMNH); same locality, 12-X-1984, M. W. Sanderson, aspen duff, 2 males, 2 females (FMNH); Sawmill Springs, 6 mi E FH3, rd. 124H, 18-XI-1984, M. W. Sanderson, mostly ponderosa pine duff, 2 males, 1 female (FMNH); West Fork Oak Creek Canyon, 1-XI-1984, M. W. Sanderson, leafy-woody debris on hillside, 1 male (FMNH); Gra-



Figs. 8, 9. *Seeversiella bispinosa*, new species. 8. Maxilla, dorsal aspect. 9. Right antenna.

ham Co., Pinalino Mtns., mi post 127, 6,500 ft, 16-V-1968, L. Herman, leaf litter, 2 males, 6 females (AMNH); Pima Co., Santa Catalina Mtns., elev. 8,000 ft, 16-VI-1968, 7 males, 1 female (AMNH); Santa Catalina Mtns., Bear Wallow, 12-17-VII-1916, 1 male (AMNH); Santa Catalina Mtns., Mt. Lemmon Ski Area, 8,500 ft, 24-VII-1983, J. S. Ashe, ex. *Fomitopsis pinicola*, 1 male (FMNH); same data, ex. *Pleurotus* sp., 1 male (FMNH); same data, ex. *Hirchioporus abietinus*, 1 male, 1 female (on microslides) (FMNH). COLORADO: Dolores Co., 19 mi NE Dolores (Montezuma Co.), W. Dolores River, 7,600 ft, 22-VII-1976, L. and N. Herman, 1 male (AMNH). MICHIGAN: Gogebie Co., Ottawa Natl. For., Sylvania Tract, 13-VIII-1977, J. Wagner, floor litter and mycelium, 5 males, 8 females (2 males, 1 female on microslides) (FMNH). NEW MEXICO: Bernalillo Co., Sandia Mtns., 9,300 ft, 21-VIII-1975, S. Peck, oak-pine-douglas fir litter, 1 male (FMNH); Grant Co., Mimbres Mtns., 20.8 mi W Hillsboro, hwy 90, 31-VII-1983, J. S. Ashe, ex. gilled mushroom, 1 male (FMNH).

Distribution (Fig. 14). *Seeversiella bispinosa* is known from the montane regions of the Southwestern United States, including the Pinalino, Santa Catalina, and San Francisco Mountains of Arizona, the Mimbres and Sandia Mountains of New Mexico and the southern Rocky Mountains in Colorado. It is also known from a disjunct population in the Upper Peninsula of Michigan. This distribution suggests that subsequent collecting may show this species to be much more widespread in the montane areas of the Rocky Mountain States and the Southwest, and perhaps also in upland regions of the southern portions of the boreal forest.

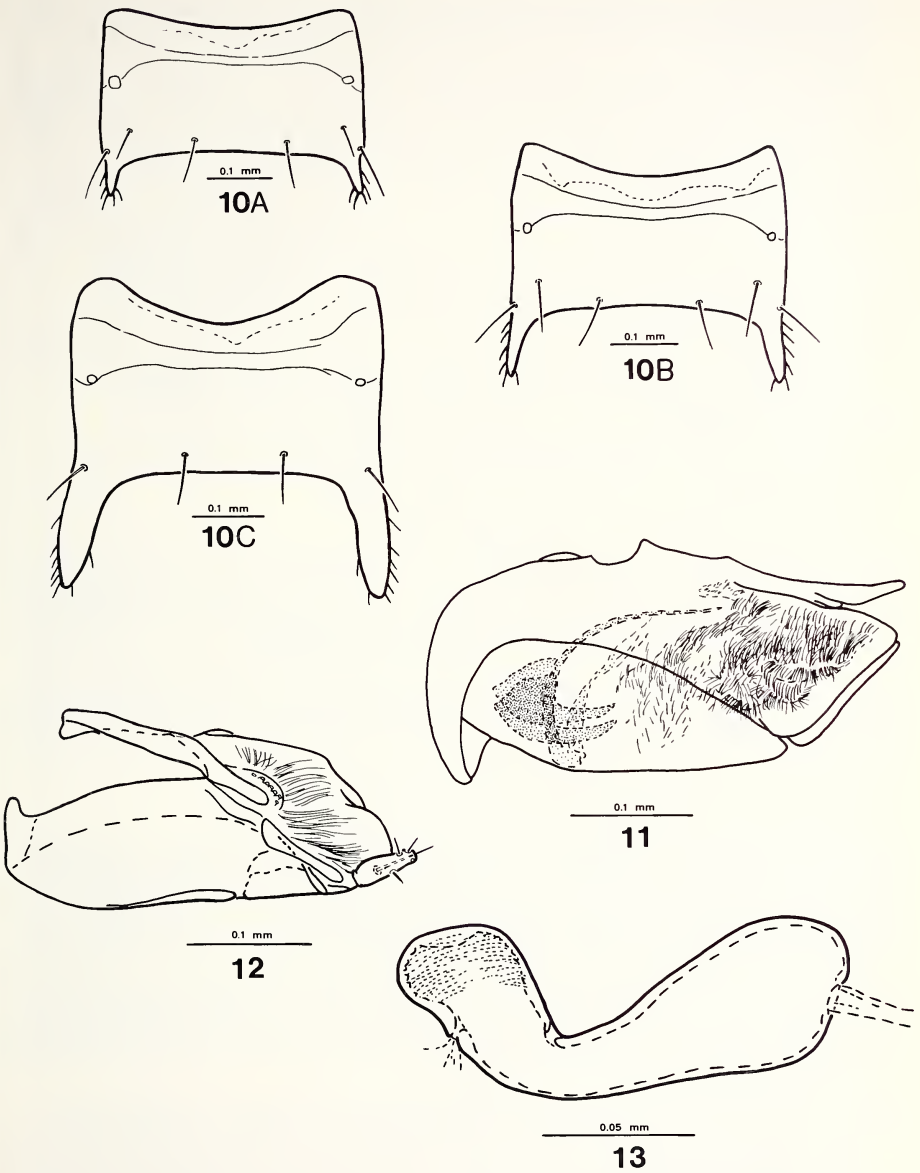
Habitat. Members of *Seeversiella bispinosa* have been most frequently collected in association with mixed conifer and aspen litter or forest duff. The largest collections have been from woody debris at the base of ponderosa pines. Specimens from Michigan were collected from "litter and mycelium." The type of litter cannot be deduced from the specimen labels; however, the primary forest type of the Upper Peninsula of Michigan is mixed conifer and aspen. It seems likely that these specimens were collected from litter of this type. A few specimens have been collected from mushrooms. However, they are not abundant in this habitat, and their association with fungal fruiting bodies is probably incidental or in association with litter which often accumulates around more persistent mushrooms.

Specimens of *S. bispinosa* have been collected in all months from May through November.

Etymology. The species name "bispinosa" is chosen to refer to the two large spines on the lateral margins of tergum III of most males.

Remarks. At present, this is the only species known in the genus *Seeversiella*. As such, it is easily recognized by the features discussed in the generic diagnosis and species description. The distinctive secondary sexual characteristics of the male provide the most visible means of recognizing members of this species. However, these vary considerably among males. Some males have very large lateral spines on tergum III and a distinctive and long median carina on tergum VII, while in others these are quite small or, on a very few males, completely absent (compare Fig. 10A-C).

The disjunct nature of the Michigan population is not associated with any obvious structural distinction in comparison with Southwestern populations. While the Michigan specimens are, on the average, a little lighter in color than most Southwestern



Figs. 10–13. *Seeversiella bispinosa*, new species. 10A–10C. Male tergum III from three individuals, showing variation in size of lateral spines. 11. Aedeagus, median lobe. 12. Aedeagus, paramere. 13. Spermatheca.

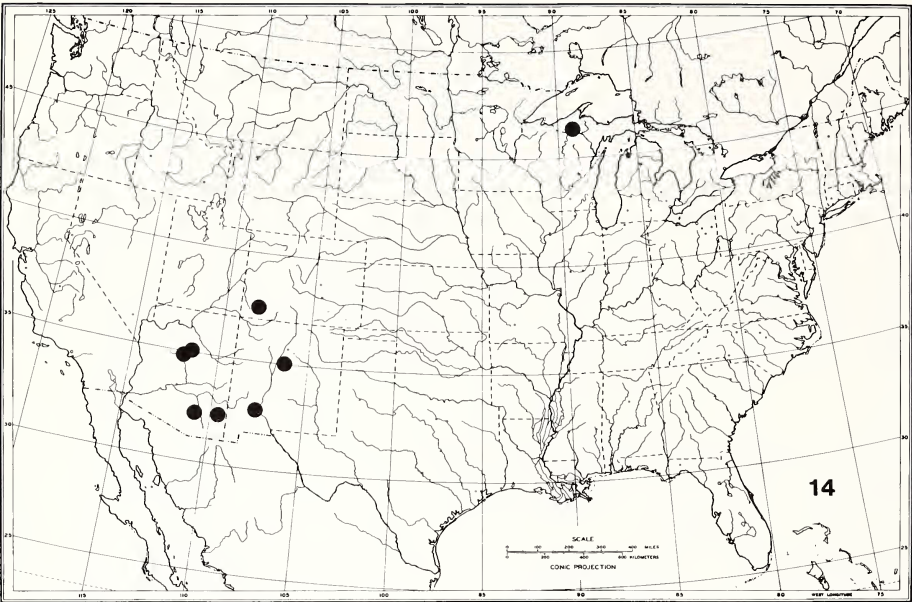


Fig. 14. *Seeversiella bispinosa*, new species. Known distribution.

specimens, they are still well within the range of variation found among specimens from a single large collection in Arizona.

IDENTIFICATION OF *SEEVERSIELLA*, NEW GENUS

The key provided by Seevers (1978) is essentially correct in that it is designed to key out *Seeversiella* at couplet 69, "new genus." However, he misinterpreted the setal pattern on the pronotum, and, therefore, members of *Seeversiella* will fail to agree with either of the alternatives presented in couplet 64. This requires that couplet 64 and several other couplets be rewritten to include more accurate information about members of this new genus and for clarity. This also allows for modification of the confusing triplet in couplet 67. A revised key for couplets 64 through 69 is given below. Couplets which do not differ from those given by Seevers are indicated by "Seevers, 1978."

- 64(62). Pronotal pubescence patterns with all setae directed caudad or laterocaudad (Patterns B, fig. 24B–E, or C, fig. 24F–G, Seevers, 1978), or setae directed medially (Fig. 2) 66
- Pronotal pubescence patterns with hairs in midline directed cephalad in at least apical half (Patterns E, fig. 24I, or F, fig. 24J–L, Seevers, 1978) 65
- 65(64). Seevers, 1978
- 66(64). Seevers, 1978
- 67(66). Eye length less than distance from posterior margin of eye to base of head and elytra shorter, or only slightly longer than, pronotum, or if elytra 1.15–1.2 times as long as pronotum, then pronotal pubescence directed medially 68

- Eye length equal to or greater than distance from base of head, *or*, if eyes smaller, elytra at least 1.2 times as long as pronotum *and* pronotal pubescence directed caudad or laterocaudad 67a
- 67a(67). Eye length equal to or greater than distance from posterior margin of eye to base of head *and/or* elytra at least 1.2 times as long as pronotum 76
- Eye length equal to distance from posterior margin of eye to base of head *and* elytra only slightly longer than pronotum (less than 1.2 times as long) *Anaduosternum* Notman
- 68(67). Pronotal hypomera broadly visible in lateral aspect; mesocoxal acetabula completely and markedly margined 69
- Pronotal hypomera not visible or partially visible in lateral aspect, if partially visible, then mesocoxal acetabula unmargined or margin very fine and indistinct 71
- 69(68). Most males with tergum III with latero-apical angles produced as prominent spines (Fig. 10A-C) and male tergum VII with median carina; pronotal pubescence with setae directed medially (Fig. 2) *Seeversiella*, new genus
- Males without above combination of secondary sexual characteristics; pronotal pubescence with setae directed caudad or laterocaudad 70

ACKNOWLEDGMENTS

I thank Dr. Rupert Wenzel for reading portions of this manuscript and providing comments and suggestions on historical background. Dr. Alfred Newton, Jr. read and offered helpful suggestions for the entire manuscript. Dr. Lee Herman arranged for loan of specimens from the collections of the American Museum of Natural History, New York. I especially thank Dr. Milton Sanderson for generously donating for study the numerous specimens of this new genus that he had collected in the San Francisco Mountains and surrounding areas of Arizona. His long series provided essential information on intraspecific variation among these beetles. I thank my wife, Aagie Ashe, for inking and otherwise completing the drawings for Figures 1-13.

LITERATURE CITED

- Arnett, R. H. 1968. The Beetles of the United States (A Manual for Identification). American Entomological Institute, Ann Arbor, Michigan, 1112 pp.
- Seevers, C. H. 1978. A generic and tribal revision of the North American Aleocharinae (Coleoptera: Aleocharinae). *Fieldiana: Zoology* 71:1-289.

Received December 16, 1985; accepted March 13, 1986.